

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference R-56	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/JP 2004/005401	International filing date (day/month/year) 15.04.2004	Priority date (day/month/year) 16.04.2003	
International Patent Classification (IPC) or national classification and IPC Int.Cl' B23K35/14, C22C21/00, C23C8/08, F28D9/00, F28F19/04, F28F21/08			
Applicant SHOWA DENKO K.K.			

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> a total of _____ sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>

Date of submission of the demand 10.11.2004	Date of completion of this report 28.02.2005
Name and mailing address of the IPEA/JP Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer IWATANI Kazuomi <input type="text" value="3M"/> <input type="text" value="3226"/> Telephone No. +81-3-3581-1101 Ext. 3375

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP 2004/005401

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- This report is based on translations from the original language into the following language _____ which is the language of a translation furnished for the purposes of:
- international search (under Rules 12.3 and 23.1(b))
 - publication of the international application (under Rule 12.4)
 - international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

- the international application as originally filed/furnished

- the description:

pages _____ as originally filed/furnished
 pages* _____ received by this Authority on _____
 pages* _____ received by this Authority on _____

- the claims:

pages _____ as originally filed/furnished
 pages* _____ as amended (together with any statement) under Article 19
 pages* _____ received by this Authority on _____
 pages* _____ received by this Authority on _____

- the drawings:

pages _____ as originally filed/furnished
 pages* _____ received by this Authority on _____
 pages* _____ received by this Authority on _____

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. The amendments have resulted in the cancellation of:

- the description, pages _____
- the claims, Nos. _____
- the drawings, sheets/figs _____
- the sequence listing (specify): _____
- any table(s) related to sequence listing (specify): _____

4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- the description, pages _____
- the claims, Nos. _____
- the drawings, sheets/figs _____
- the sequence listing (specify): _____
- any table(s) related to sequence listing (specify): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims Claims	<u>1-41</u>	YES NO
Inventive step (IS)	Claims Claims	<u>1-19, 29-41</u> <u>20-28</u>	YES NO
Industrial applicability (IA)	Claims Claims	<u>1-41</u>	YES NO

2. Citations and explanations (Rule 70.7)

- D1: JP 9-316577 A (THE FURUKAWA ELECTRIC CO.,LTD.) 1997.12.09
 D2: JP 8-337874 A (MATSUSHITA ELECTRIC INDUSTRIAL CO.,LTD.) 1996.12.24
 D3: JP 53-48956 A (SUMITOMO LIGHT METAL INDUSTRIES.,LTD.) 1978.05.02
 D4: JP 2002-1574 A (KOBE STEEL,LTD.) 2002.01.08
 D5: JP 2001-1179 A (DENSO CORPORATION) 2001.01.09

The subject matter of claims 1-19 and 29-41 are considered to involve inventive steps over the document 1,2,3,4 and 5 cited in the International Search Report.

Inventive step: Concerning claims 20-28

The subject matter of claims 20-28 do not appear to involve inventive steps in view of the document 1,2,3,4 and 5 cited in the International Search Report.

The document 1 discloses a process for fabricating a heat exchanger by brazing the two plates in pair and arranging the fins between them.

The document 2 discloses a process for forming a fluoride layer over surfaces of the fins and the heat exchanging tubes. It is easy for the man skilled in the art to apply this process to the heat exchanger disclosed in D1.

The document 3 discloses a process for preheating the product of pure aluminum or aluminum alloy to diffuse the Si before brazing. It is easy for the man skilled in the art to apply this process to the heat exchanger disclosed in D1.

The document 4 discloses a process for adding Zr of 0.05 to 0.20 mass % to an intermediate layer of an aluminum brazing sheet to enhance anti-erosion character. It is easy for the man skilled in the art to apply this process to the heat exchanger disclosed in D1.

The document 5 discloses an aluminum alloy brazing sheet that has Mg of 0.2 to 1.5 mass % in its intermediate layer. It is easy for the man skilled in the art to apply this sheet to the heat exchanger disclosed in D1.

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